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29683 7590 03/30/2007 HARRINGTON & SMITH, PC 4 RESEARCH DRIVE SHELTON, CT 06484-6212			EXAMINER HERNANDEZ, NELSON D	
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SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
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Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/774,821

Applicant(s)

HERRANEN ET AL.

Examiner

Nelson D. Hernandez

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 February 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because the labels of the drawings are difficult to read or are not identifying clearly the elements and the drawings in figs. 1, 2, 3, 9-11 and 19-20 are difficult to identify (black images). Applicant is advised to employ the services of a competent patent draftsman outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

Specification

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. **Claims 1-4, 7, 8 and 10 are rejected under 35 U.S.C. 102(e) as being anticipated by Nishio, US Patent 7,077,663 B2.**

Regarding claim 1, Nishio discloses an electronic device (Col. 4, lines 46-53) comprising: a device printed wiring board (Col. 4, line 66 – col. 5, line 10); an electrical connector (Figs. 2B: 25 and 3: 25) connected to the device printed wiring board; a camera (Figs. 1C: 21 and 3: 21) coupled to the device printed wiring board by the electrical connector at a stepless movement height connection (Col. 4, line 54 – col. 5, line 40), wherein the stepless movement height connection allows the camera to slide relative to the electrical connector along a first axis (optical axis) to allow positioning of the camera relative to the electrical connector at one of a plurality of different heights along the first axis (As shown in fig 3, the camera can be slid relative to the circuit board since the pins 26 are formed as springs that would allow to move the camera and can also hold in place said camera without needing to have steps to hold the camera in place) (Col. 4, line 44 – col. 5, line 40).

Regarding claim 2, Nishio discloses that the electronic device comprises a hand-held portable electronic device (Nishio discloses that the camera module is mounted to a cellular phone or the like; col. 4, lines 46-53).

Regarding claim 3, limitations can be found in claim 2.

Regarding claim 4, Nishio discloses that the electrical connector comprises a camera receiving slot (Figs. 2D: 25a and 3: 25a) with electrical contacts (pins 26 as shown in figs. 2A, 2D and 3) extending into the camera receiving slot (See figs. 2A, 2D and 3), and wherein the camera is located in the camera receiving slot (See fig. 3).

Regarding claim 7, Nishio discloses that the camera comprises a housing (Figs. 1C: 22 and 3: 22) and electrical conductors (Fig. 3: 24) on the housing, wherein the electrical conductors extend along a first lateral exterior side of the housing (See connectors extending along all lateral sides of the housing as shown in fig. 1C).

Regarding claim 8, Nishio discloses that the electrical conductors (Fig. 1D: 24) extend along an opposite second lateral exterior side of the housing (See fig. 1C), and wherein the electrical connector comprises contacts (Figs. 2D: 26 and 3: 26) located in a camera receiving slot of the electrical connector and electrically contacting the electrical conductors on the first and second lateral sides of the housing of the camera (See fig. 3; col. 4, line 44 – col. 5, line 40).

Regarding claim 10, Nishio discloses that the electrical connector comprises a housing having a general ring shape (See figs. 2A, 2D and 3) with a center camera receiving slot (See figs. 2D: 25 and 3: 25), and electrical spring contacts (Fig. 2D: 26

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and 3: 26) extending into the camera receiving slot from opposite sides of the general ring shape (See figs. 2D and 3).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. **Claims 5, 6, 19-23 and 33-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishio, US Patent 7,077,663 B2 in view of Miyake, US Patent 6,836,669 B2.**

Regarding claim 5, Nishio does not explicitly disclose that the device printed wiring board comprises a slot, and wherein the camera extends through the slot.

However, Miyake discloses a portable telephone (Fig. 1) provided with a camera (Fig. 1: 1), said portable telephone comprising a telephone printed wiring board (mother board 2 as shown in fig. 1) having a transceiver attached to said printed wiring board (Miyake inherently disclose a transceiver attached to the mobile telephone printed wiring board since a transceiver is necessitated in a mobile telephone printed wiring board to transmit and receive data), wherein said telephone printed wiring board comprises camera electrical connector (formed as a hole in the substrate) having a camera receiving area (opening 201 as shown in fig. 2A) adapted to receive a camera

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therein and make electrical contact with conductors (Fig. 2A: 104), said receiving portion comprises a through hole extending entirely through a said camera electrical connector (See figs. 1 and 2A) (Col. 4, line 63 – col. 5, line 46).

Therefore, taking the combined teaching of Nishio in view of Miyake as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the electrical connector in Nishio by having a slot in the printed wiring board and having the camera extending through the slot. The motivation to do so would have been to reduce the size and thickness of the mobile telephone as suggested by Miyake (Col. 2, lines 36-43).

Regarding claim 6, the combined teaching of Nishio in view of Miyake as discussed and analyzed in claim 5 teaches that the camera comprises contacts (Nishio, fig. 2D: 26 and 3: 26) and the electrical connector comprises substantially stationary conductors (Nishio, fig. 2D: 26 and 3: 26), and wherein the contacts are adapted to slide along the substantially stationary conductors when the camera is inserted into the electrical connector and into the slot of the device printed wiring board (Nishio, Col. 4, line 44 – col. 5, line 40) but fails to teach that the contacts are spring contacts.

However, Official Notice is taken that the use of spring contacts (such as J-lead contacts) in semiconductor devices to connect said semiconductor device to a wiring board is notoriously well known in the art and one of ordinary skill in the art would find obvious to have the contact of the camera in Nishio and Miyake made as a spring with the motivation of maintaining the image pickup device in place while protecting the device from cracking when assembling said device to a substrate or a wiring board.

Regarding claim 19, Nishio discloses a printed wiring board and electrical connector subassembly comprising: a mobile telephone printed wiring board (Col. 4, line 46 – col. 5, line 10; Nishio discloses that the camera module is mounted to a cellular phone or the like) having a transceiver attached to the mobile telephone printed wiring board (Nishio inherently disclose a transceiver attached to the mobile telephone printed wiring board since a transceiver is necessitated in a mobile telephone printed wiring board to transmit and receive data); and a camera electrical connector (Figs. 2B: 25 and 3: 25) attached to the mobile telephone printed wiring board Col. 4, line 54 – col. 5, line 40, wherein the camera electrical connector comprises a camera receiving area (Figs. 2B: 25a and 3: 25a) adapted to receive a camera therein and make electrical contact with conductors (Figs. 1D: 24 and 3: 24) of the camera inside the camera receiving area (See fig. 3) (Col. 4, line 44 – col. 5, line 40).

Nishio does not explicitly disclose that the camera receiving area comprises a through hole extending entirely through a housing of the camera electrical connector.

However, Miyake discloses a portable telephone (Fig. 1) provided with a camera (Fig. 1: 1), said portable telephone comprising a telephone printed wiring board (mother board 2 as shown in fig. 1) having a transceiver attached to said printed wiring board (Miyake inherently disclose a transceiver attached to the mobile telephone printed wiring board since a transceiver is necessitated in a mobile telephone printed wiring board to transmit and receive data), wherein said telephone printed wiring board comprises camera electrical connector (formed as a hole in the substrate) having a camera receiving area (opening 201 as shown in fig. 2A) adapted to receive a camera

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therein and make electrical contact with conductors (Fig. 2A: 104), said receiving portion comprises a through hole extending entirely through a said camera electrical connector (See figs. 1 and 2A) (Col. 4, line 63 – col. 5, line 46).

Therefore, taking the combined teaching of Nishio in view of Miyake as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the electrical connector in Nishio by making a through hole extending entirely through a housing of the camera electrical connector. The motivation to do so would have been to reduce the size and thickness of the mobile telephone as suggested by Miyake (Col. 2, lines 36-43).

Regarding claim 20, the combined teaching of Nishio in view of Miyake as discussed and analyzed in claim 19 teaches that the camera electrical connector comprises contacts (Nishio, fig. 2D: 26 and 3: 26) extending into the camera receiving area (Nishio, fig. 2D: 25a and 3: 25a) from a first lateral side of the camera receiving area (See Nishio, figs. 2D and 3) but fails to teach that the contacts are spring contacts.

However, Official Notice is taken that the use of spring contacts (such as J-lead contacts) in semiconductor devices to connect said semiconductor device to a wiring board is notoriously well known in the art and one of ordinary skill in the art would find obvious to have the contact of the camera in Nishio and Miyake made as a spring with the motivation of maintaining the image pickup device in place while protecting the device from cracking when assembling said device to a substrate or a wiring board.

Regarding claim 21, the combined teaching of Nishio in view of Miyake as discussed and analyzed in claim 20 teaches that the spring contacts extend into the

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camera receiving area from a second opposite lateral side of the camera receiving area (See Nishio, figs. 2D and 3). Grounds for rejecting claim 10 apply here.

Regarding claim 22, the combined teaching of Nishio in view of Miyake as discussed and analyzed in claim 20 teaches that the camera electrical connector comprises a housing with a general ring shape (See figs. 2A, 2D and 3) and wherein the camera receiving area is located inside the general ring shape (See figs. 2A, 2D and 3).

Regarding claim 23, limitations can be found in claim 19.

Regarding claim 33, this is a method claim of the apparatus in claim 19.

Therefore, grounds for rejecting claim 19 apply here.

Regarding claim 34, limitations can be found in claim 20.

Regarding claim 35, limitations can be found in claim 21.

Regarding claim 36, the combined teaching of Nishio in view of Miyake as discussed and analyzed in claim 19 teaches sliding electrical conductors of the camera along electrical contacts of the electrical connector along an insertion path of the camera into the slot of the electrical connector (As shown in Nishio, fig 3, the camera can be slid relative to the circuit board since the pins 26 are formed as springs that would allow to move the camera and can also hold in place said camera without needing to have steps to hold the camera in place).

Regarding claim 37, Nishio discloses an electronic device (Col. 4, lines 46-53) comprising: a device printed wiring board having a connector; and a camera (Figs. 1C: 21 and 3: 21) mounted on connector in the device printed wiring board (Col. 4, line 66 – col. 5, line 10) and coupled to the device printed wiring board by a stepless movement

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variable height connection (Col. 4, line 54 – col. 5, line 40), wherein the stepless movement variable height connection allows the camera to slide relative to the device printed wiring board along a first axis to allow positioning of the camera relative to the device printed wiring board at one of a plurality of different heights along the first axis (as shown in Nishio, fig 3, the camera can be slid relative to the circuit board since the pins 26 are formed as springs that would allow to move the camera and can also hold in place said camera without needing to have steps to hold the camera in place) (Col. 4, line 44 – col. 5, line 40).

Nishio does not explicitly disclose that the connector is a slot therethrough.

However, Miyake discloses a portable telephone (Fig. 1) provided with a camera (Fig. 1: 1), said portable telephone comprising a telephone printed wiring board (mother board 2 as shown in fig. 1) having a transceiver attached to said printed wiring board (Miyake inherently disclose a transceiver attached to the mobile telephone printed wiring board since a transceiver is necessitated in a mobile telephone printed wiring board to transmit and receive data), wherein said telephone printed wiring board comprises camera electrical connector (formed as a hole in the substrate) having a camera receiving area (opening 201 as shown in fig. 2A) adapted to receive a camera therein and make electrical contact with conductors (Fig. 2A: 104), said receiving portion comprises a through hole extending entirely through a said camera electrical connector (See figs. 1 and 2A) (Col. 4, line 63 – col. 5, line 46).

Therefore, taking the combined teaching of Nishio in view of Miyake as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention

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was made to modify the electrical connector in Nishio by making a through hole extending entirely through a housing of the camera electrical connector. The motivation to do so would have been to reduce the size and thickness of the mobile telephone as suggested by Miyake (Col. 2, lines 36-43).

Regarding claim 38, the combined teaching of Nishio in view of Miyake as discussed and analyzed in claim 19 teaches that the device printed wiring board comprises contact pads at the slot and the camera comprises contacts in the slot and slidable along the contact pads (Nishio, fig. 2D: 26 and 3: 26) (As shown in Nishio, fig 3, the camera can be slid relative to the circuit board since the pins 26 are formed as springs that would allow to move the camera and can also hold in place said camera without needing to have steps to hold the camera in place) (Nishio, Col. 4, line 44 – col. 5, line 40) but fails to teach that the camera contacts are spring contacts.

However, Official Notice is taken that the use of spring contacts (such as J-lead contacts) in semiconductor devices to connect said semiconductor device to a wiring board is notoriously well known in the art and one of ordinary skill in the art would find obvious to have the contact of the camera in Nishio and Miyake made as a spring with the motivation of maintaining the image pickup device in place while protecting the device from cracking when assembling said device to a substrate or a wiring board.

7. Claims 11, 24-30 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishio, US Patent 7,077,663 B2 in view of Ting, US 2003/0070288 A1.

Regarding claim 11, Nishio does not explicitly disclose that the camera extends through the electrical connector in a general substantially stationery telescoping arrangement.

However, Ting teaches an image sensor (See fig. 2: 310) mounted to a substrate (Fig. 2: 410) using a connection means (frame 210 as shown in fig. 2), wherein said image sensor extends relative to the substrate in a general substantially stationery telescoping arrangement by adjusting screws (Fig. 2: 260) in order to meet the requirement for lens focus, and to insure the precise alignment of the image sensor (Page 2, ¶ 0019-0023).

Therefore, taking the combined teaching of Nishio in view of Ting as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Nishio by having the camera extending through the electrical connector in a general substantially stationery telescoping arrangement. The motivation to do so would have been to meet the requirement for lens focus, and to insure the precise alignment of the image sensor as suggested by Ting (Page 2, ¶0023).

Regarding claim 24, Nishio discloses a portable electronic device (Col. 4, lines 46-53) comprising: a device printed wiring board (Col. 4, line 66 – col. 5, line 10); an electrical connector (Figs. 2B: 25 and 3: 25) connected to the device printed wiring board (Col. 4, line 54 – col. 5, line 40), wherein the electrical connector has a camera

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receiving slot (Figs. 2B: 25a and 3: 25a); and a camera (Figs. 1C: 21 and 3: 21) coupled to the printed wiring board by the electrical connector (Col. 4, line 54 – col. 5, line 40), wherein a housing (Figs. 1C: 22 and 3: 22) of the camera is located partially inside the camera receiving area (As shown in fig 3, the camera can be slid relative to the circuit board since the pins 26 are formed as springs that would allow to move the camera and can also hold in place said camera without needing to have steps to hold the camera in place) (Col. 4, line 44 – col. 5, line 40).

Nishio does not explicitly disclose that the connection between the camera and the connector provides a substantially stationery telescoping connection with a partially coplanar height.

However, Ting teaches an image sensor (See fig. 2: 310) mounted to a substrate (Fig. 2: 410) using a connection means (frame 210 as shown in fig. 2), wherein said image sensor extends relative to the substrate in a general substantially stationery telescoping arrangement by adjusting screws (Fig. 2: 260) in order to meet the requirement for lens focus, and to insure the precise alignment of the image sensor (Page 2, ¶ 0019-0023).

Therefore, taking the combined teaching of Nishio in view of Ting as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Nishio by having the connection between the camera and the connector providing a substantially stationery telescoping connection with a partially coplanar height. The motivation to do so would have been to meet the requirement for lens

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focus, and to insure the precise alignment of the image sensor as suggested by Ting (Page 2, ¶0023).

Regarding claim 25, the combined teaching of Nishio in view of Ting as discussed and analyzed in claim 24 teaches that the electrical connector comprises a housing with a general ring shape (See Nishio, figs. 2A, 2D and 3) and wherein the camera receiving slot is located inside the general ring shape (See Nishio, figs. 2D and 3).

Regarding claim 26, the combined teaching of Nishio in view of Ting as discussed and analyzed in claim 24 teaches that the electrical connector comprises electrical spring contacts (See Nishio, figs. 2D: 26 and 3: 26) extending into a lateral side of the camera receiving slot (See Nishio, figs. 2D and 3).

Regarding claim 27, the combined teaching of Nishio in view of Ting as discussed and analyzed in claim 24 teaches that the electrical spring contacts extend into the camera receiving slot from two opposite lateral sides (See Nishio, figs. 2D and 3).

Regarding claim 28, the combined teaching of Nishio in view of Ting as discussed and analyzed in claim 24 teaches that the camera comprises electrical conductors (See Nishio, figs. 1C: 24 and 3: 24) on at least one lateral side of the housing of the camera which are located inside the camera receiving slot (See Nishio, figs. 2D and 3).

Regarding claim 29, the combined teaching of Nishio in view of Ting as discussed and analyzed in claim 24 teaches that the electrical conductors comprises

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metallized conductors formed on exterior sides of the housing of the camera (See Nishio, figs. 1C: 24 and 3: 24).

Regarding claim 30, limitations can be found in claim 24.

Regarding claim 32, the combined teaching of Nishio in view of Ting as discussed and analyzed in claim 24 teaches that the portable electronic device comprises a mobile telephone with a transceiver connected to the device printed wiring board (Nishio inherently disclose a transceiver attached to the mobile telephone printed wiring board since a transceiver is necessitated in a mobile telephone printed wiring board to transmit and receive data; col. 4, lines 46-53).

8. Claims 9, 12-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishio, US Patent 7,077,663 B2 in view of Yamada, US Patent 6,768,516 B2.

Regarding claim 9, Nishio discloses that the electrical conductors extend along an adjacent side of the housing (See figs. 2 and 3) but does not explicitly disclose that the camera comprises a camera printed wiring board attached to the electrical conductors on the adjacent side of the housing.

However, having a camera printed board stationarily connected to a camera housing and coupled to the camera electrical conductors is well known in the art as taught by Yamada. Yamada teaches a camera system (See figs. 1 and 2) commonly used in cellular phones (Col. 1, lines 12-21), the camera system comprising a housing (stepped wiring board 21 as shown in figs 1 and 2) to establish electrical connection with the image pick-up semiconductor (Figs. 1: 4 and 2: 4), wherein a camera printed

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wiring board (image processing semiconductor 9 as shown in figs. 1 and 2) is stationarily connected to the housing and coupled to the camera electrical conductors (Connectors 27 and 28 as shown in fig. 2) through the housing (See fig. 2) and said housing including the image pick-up semiconductor and the camera printed wiring board, is connected to the wiring board (Figs. 1: 5 and 2: 5) (Col. 3, line 52 – col. 4, line 50). Having an image processing stationary connected to the camera is advantageous because it would reduce the size and cost of assembling of the portable electronic device.

Therefore, taking the combined teaching of Nishio in view of Yamada as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Nishio by having a camera printed wiring board stationarily connected to the housing and coupled to the electrical conductors. The motivation to do so would have been to reduce the size and cost of assembling of the portable electronic device as suggested by Yamada (Col. 4, lines 38-50).

Regarding claim 12, Nishio discloses a portable electronic device (Col. 4, lines 46-53) camera (Figs. 1A: 21 and 3: 21) comprising: a housing (Figs. 1C: 22 and 3: 22); electrical conductors (Figs. 1C: 24 and 3: 24) along a first lateral side of the housing (See connectors extending along all lateral sides of the housing as shown in fig. 1C); wherein the electrical conductors are adapted to be removably connected to contacts of an electrical connector (Figs. 2D: 26 and 3: 26) located along the first lateral side of the housing (See Nishio, figs. 2D and 3) (Col. 4, line 44 – col. 5, line 40).

Nishio does not explicitly disclose a camera printed wiring board stationarily connected to the housing and coupled to the electrical conductors.

However, having a camera printed board stationarily connected to a camera housing and coupled to the camera electrical conductors is well known in the art as taught by Yamada. Yamada teaches a camera system (See figs. 1 and 2) commonly used in cellular phones (Col. 1, lines 12-21), the camera system comprising a housing (stepped wiring board 21 as shown in figs 1 and 2) to establish electrical connection with the image pick-up semiconductor (Figs. 1: 4 and 2: 4), wherein a camera printed wiring board (image processing semiconductor 9 as shown in figs. 1 and 2) is stationarily connected to the housing and coupled to the camera electrical conductors (Connectors 27 and 28 as shown in fig. 2) through the housing (See fig. 2) and said housing including the image pick-up semiconductor and the camera printed wiring board, is connected to the wiring board (Figs. 1: 5 and 2: 5) (Col. 3, line 52 – col. 4, line 50). Having an image processing stationary connected to the camera is advantageous because it would reduce the size and cost of assembling of the portable electronic device.

Therefore, taking the combined teaching of Nishio in view of Yamada as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Nishio by having a camera printed wiring board stationarily connected to the housing and coupled to the electrical conductors. The motivation to do so would have been to reduce the size and cost of assembling of the portable electronic device as suggested by Yamada (Col. 4, lines 38-50).

Regarding claim 13, the combined teaching of Nishio in view of Yamada as discussed and analyzed in claim 12 teaches that the electrical conductors extend along a second opposite lateral side of the housing (See Nishio, figs. 2D and 3).

Regarding claim 14, the combined teaching of Nishio in view of Yamada as discussed and analyzed in claim 12 teaches that the electrical conductors comprises metallized conductor paths (See Nishio, figs. 1C: 24 and 3: 24) along exterior sides of the housing (See Nishio, connectors extending along all lateral sides of the housing as shown in fig. 1C).

Regarding claim 15, the combined teaching of Nishio in view of Yamada as discussed and analyzed in claim 12 teaches that the electrical conductors extend along an adjacent side of the first lateral side, and wherein the camera printed wiring board is electrically connected to the electrical conductors on the adjacent side (Since the connectors in Nishio would have to be extended to mount the printed circuit board as suggested by Yamada). Grounds for rejecting claim 12 apply here.

Regarding claim 16, the combined teaching of Nishio in view of Yamada as discussed and analyzed in claim 12 teaches that the electrical conductors along the first lateral side are adapted to slide along the contacts of the electrical connector in a first axis of insertion (optical axis) of the portable electronic device camera into the electrical connector to provide an adjustable height connection of the portable electronic device camera to the electrical connector (as shown in Nishio, fig 3, the camera can be slid relative to the circuit board since the pins 26 are formed as springs that would allow to

move the camera and can also hold in place said camera without needing to have steps to hold the camera in place) (Nishio, col. 4, line 44 – col. 5, line 40).

Regarding claim 17, the combined teaching of Nishio in view of Yamada as discussed and analyzed in claim 12 teaches that the camera printed wiring board is located at a rear end of the housing, and wherein an image inlet aperture is located at a front end of the housing (as shown in Yamada the printed wiring board 9 is located at a rear end of the housing 21 (See figs. 1 and 2) and in Nishio, the image inlet aperture is located at a front end of the housing (See figs. 1C and 3)).

Regarding claim 18, limitations can be found in claim 12.

9. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nishio, US Patent 7,077,663 B2 in view of Ting, US 2003/0070288 and further in view of Miyake, US Patent 6,836,669 B2.

Regarding claim 31, the combined teaching of Nishio in view of Ting fails to teach that the means for locating the camera comprises the camera extending through a slot in the device printed wiring board.

However, Miyake discloses a portable telephone (Fig. 1) provided with a camera (Fig. 1: 1), said portable telephone comprising a telephone printed wiring board (mother board 2 as shown in fig. 1) having a transceiver attached to said printed wiring board (Miyake inherently disclose a transceiver attached to the mobile telephone printed wiring board since a transceiver is necessitated in a mobile telephone printed wiring

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board to transmit and receive data), wherein said telephone printed wiring board comprises camera electrical connector (formed as a hole in the substrate) having a camera receiving area (opening 201 as shown in fig. 2A) adapted to receive a camera therein and make electrical contact with conductors (Fig. 2A: 104), said receiving portion comprises a through hole extending entirely through a said camera electrical connector (See figs. 1 and 2A) (Col. 4, line 63 – col. 5, line 46).

Therefore, taking the combined teaching of Nishio in view of Miyake as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the electrical connector in Nishio by having a slot in the printed wiring board and having the camera extending through the slot. The motivation to do so would have been to reduce the size and thickness of the mobile telephone as suggested by Miyake (Col. 2, lines 36-43).

Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nelson D. Hernandez whose telephone number is (571) 272-7311. The examiner can normally be reached on 8:30 A.M. to 6:00 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivek Srivastava can be reached on (571) 272-7304. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Examiner
Art Unit 2622

NDHH
March 24, 2007


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PRIMARY EXAMINER